

OSH REGULATORY SUMMARY

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A brief historical outline has been provided that depicts the development of OSH Regulations, associated with our Command OSH Instruction.

2. Workplace Hazard Identification Guide 2-6

This guide is to be used as a tool to help maintain a safe & healthy workplace. The guide lists and discusses common workplace hazards and was developed by reviewing historical NPS NAVOSH Deficiency Notices and summarizing regulations from the General Industry (29 CFR 1910) and Construction (29 CFR 1926) standards. UNDER NO CIRCUMSTANCES DOES THIS GUIDE AND THE CONTENTS THERE OF REPLACE THE ESTABLISHED OSHA STANDARDS. THE OSHA standards should always be consulted when maintaining regulatory compliance in the workplace . OSHA Standards are easily researched by viewing the OSHA web site at: <http://www.osha.gov/comp-links.html>. Highlighted topics in this guide include:

- Housekeeping
- Storage
- Portable Fire Extinguishers
- Egress
- Guarding Floor & Wall Openings and Holes
- Fixed Industrial Stairs
- Portable Wood & Metal Ladders
- Scaffolds
- Fall Protection
- Flammable/Combustible Liquid Storage
- Personal Protective Equipment
- Emergency Washing Facilities
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OSH REGULATORY BACKGROUND

Public Law 91-596

91st Congress, S. 2193

December 29, 1970

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled. That this Act may be cited as the “Occupational Safety and Health Act of 1970”. This Act has been amended three times since then, the latest as of September 29, 1998. The basic purpose of the Act is to assure safe and healthful working conditions for working men and women; by authorizing enforcement of the standards developed under the Act; by providing for research, information, education, and training in the field of occupational safety and health; and for other purposes.

Executive Order 11612

July 1971

The Order stated that the Federal government has a special obligation to set an example for safe and healthful employment.

Executive Order 11807

September 1974

The Order tasked the Secretary of Labor to issue guidelines to assist Federal agencies in establishing their programs.

October 1974

The Secretary of Labor issued these “guidelines” as Title 29, Code of Federal Regulations, Part 1960, “Safety and Health Provisions for Federal Employees.”

Executive Order 12196

February 1980

The Order made revisions to previous Orders and established the “Basic Program Elements for Federal Employee Occupational Safety and Health Programs.” The heads of Federal agencies were specifically required to:

- Furnish to employee’s places and conditions of employment that are free from recognized hazards that are likely to cause death or serious physical harm.

- Operate an occupational safety and health program in accordance with the requirements of this order and basic program elements promulgated by the Secretary.
- Designate an agency official with sufficient authority to represent the interest and support of the agency head to be responsible for the management and administration of the agency occupational safety and health program.
- Comply with all standards issued under section 6 of the Act, except where the Secretary approves compliance with alternative standards. When an agency head determines it necessary to apply a different standard, that agency head shall, after consultation with appropriate occupational safety and health committees where established, notify the Secretary and provide justification that equivalent or greater protection will be assured by the alternate standard.
- Assure prompt abatement of unsafe or unhealthful working conditions, it shall develop an abatement plan setting forth a timetable for abatement and a summary of interim steps to protect employees. Employees exposed to the conditions shall be informed of the provisions of the plan. When a hazard cannot be abated without assistance of the General Services Administration or other Federal lessor agency, an agency shall act with lessor agency to secure abatement.
- Establish procedures to assure that no employee is subject to restraint, interference, coercion, discrimination or reprisal for filing a report of an unsafe or unhealthful working condition, or participation in agency occupational safety and health program activities.
- Assure that periodic inspections of all agency workplace are performed by personnel with equipment and competence to recognize hazards.
- Assure response to employee reports of hazardous conditions and require inspections within twenty-four (24) hours for imminent dangers, three working days for potential serious conditions, and twenty working days for other conditions. Assure the right to anonymity of those making the reports.
- Assure that employee's representatives accompany inspections of agency workplace.
- Operate an occupational safety and health management information system, which shall include the maintenance of such records as the Secretary may require.

- Provide safety and health training for supervisory employees, employees responsible for conducting occupational safety and health inspections, all members of occupational safety and health committees where established, and other employees.
- Submit to the Secretary an annual report on the agency occupational safety and health program that includes information the Secretary prescribes.

Department of Defense Instruction 6055.1
October 1984

The Department of Defense establishes a formal Occupation Safety and Health Program incorporating the elements of E.O. 12196 as DODI 6055.1

OPNAV Instruction 5100.23E
January 1999

OPNAVINST 5100.23E is the latest revision of the Navy's Occupation Safety and Health Program Manual. The instruction contains 32 Chapters and is the primary guidance for Navy personnel.

WORKPLACE HAZARD IDENTIFICATION GUIDE

This guide is to be used as a tool to help maintain a safe and healthy workplace. The guide lists common workplace hazards and was developed by summarizing regulations from the General Industry (29 CFR 1910) and Construction (29 CFR 1926) Standards. **UNDER NO CIRCUMSTANCES DOES THIS GUIDE, AND THE CONTENTS THEREOF REPLACE THE ESTABLISHED OSHA STANDARDS.**

The OSHA standards should always be consulted when maintaining regulatory compliance in the workplace. OSHA standards are easily researched by viewing the OSHA website at: <http://www.osha.gov/comp-links.html>

Highlighted topics in this guide include the following:

- **HOUSEKEEPING**
- **STORAGE**
- **PORTABLE FIRE EXTINGUISHERS**
- **EGRESS**
- **GUARDING FLOOR & WALL OPENINGS & HOLES**
- **FIXED INDUSTRIAL STAIRS**
- **PORTABLE WOOD & METAL LADDERS**
- **FIXED LADDERS**
- **SCAFFOLDS**
- **FALL PROTECTION**
- **FLAMMABLE/COMBUSTIBLE LIQUID STORAGE**
- **PERSONAL PROTECTIVE EQUIPMENT**
- **EMERGENCY WASHING FACILITIES**
- **COMPRESSED AIR EQUIPMENT**
- **OXYGEN/FUEL CYLINDERS**
- **ELECTRICAL**
- **TOOLS/MACHINERY/MACHINE GUARDING**
- **POWERED INDUSTRIAL TRUCKS**
- **GENERAL DUTY CLAUSE**
- **OSHA GENERAL INDUSTRY REGULATIONS INDEX**
- **OSHA CONSTRUCTION REGULATIONS INDEX**
- **BASIC PROGRAM ELEMENTS FOR FEDERAL EMPLOYEE OSH PROGRAMS**

HOUSEKEEPING (29CFR1910.22)

- Aisles and Passageways - Where mechanical handling equipment is used, such as in warehouses, sufficient safe clearance shall be allowed for aisles, at loading dock, through doorways, and where ever turns or passage must be made. Aisles and passageways used by mechanical equipment shall be kept clear and in good repair with no obstruction across or in aisles that could create hazards.
- General housekeeping shall be maintained. No tripping hazards.
- All aisles should be maintained free of obstructions from tripping Hazards.
- Covers and/or guardrails shall be provided in aisles and passageways to protect personnel form the hazards of open puts, tanks, vats, and ditches.
- All places of employment, passageways, storerooms, and service rooms shall be kept clean and orderly and in a sanitary condition.
- All floors surfaces shall be kept clean, dry, and free from protruding nails, splinters, loose boards, holes, or projections.
- Floors/carpeting shall be free from tripping hazards, i.e., cords, frayed carpeting, packages left in aisles, etc.
- Where wet processes are used, drainage shall be maintained, and false floors, platforms, mats, or other dry standing places shall be provided where practicable.
- In every building or other structure, or part thereof used for mercantile, business, industrial, or storage purposes, the floor loading limit approved by the building official shall be marked on plates of approved design that shall be supplied and securely affixed by the owner of the building, or his duly authorized agent, in a conspicuous place in each space to which they relate. Such plates shall not be removed or defaced but, if lost, removed, or defaced, shall be replaced by the owner or his agent.
- It shall be unlawful to place, or cause, or permit to be placed, on any floor or roof of a building or other structure a load greater than that for which such floor or roof is approved by the building official.

STORAGE (29CFR 1910.176)

- Storage of materials shall not create a hazard. All stored materials stacked in tiers shall be stacked, blocked, interlocked, and limited in height so that they are secure against sliding or collapse.
- Storage areas shall be kept free from accumulation of materials that constitute hazards from tripping, fire, explosion or pest harborage. Vegetation control will be exercised when necessary.

PORTABLE FIRE EXTINGUISHERS (29CFR 1910.157)

- Where the employer has provided portable fire extinguishers for employee use in the workplace, the employer also shall provide an educational program to familiarize employees

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with the general principles of fire extinguisher use and the hazards involved with incipient stage fire fighting.

- If portable fire extinguishers are provided for employee use, the employer shall mount, locate, and identify them so they are readily accessible to employees without subjecting the employees to possible injury. These fire extinguishers shall be maintained in a fully charged and operable condition and kept in their designated places at all times except during use.
- Fire Protection - Portable fire extinguishers shall be given maintenance service at least once a year and a written record kept to show the maintenance of recharge date. A record shall be maintained of the service.
- Travel distance for Class A fires for employees to any extinguisher is 75 ft. or less.
- Travel distance for Class B fires from the Class B hazard area to any extinguisher is 50 ft. or less.
- Travel distance for fire extinguishers used for Class C hazards shall be based on the appropriate pattern for the existing Class A or B hazards.
- Travel distance for Class D fires from the Class D hazard area to any extinguisher is 75 ft. or less.

Portable fire extinguishers shall be inspected monthly by the fire department.

EGRESS (29CFR 1910.36, 1910.37, 1910.38)

- No lock or fastening to prevent free escape from the inside of any building shall be installed except in mental, penal, or corrective institutions where supervisory personnel is continually on duty and effective provisions are made to remove occupants in case of fire or other emergency.
- Every exit shall be clearly visible or the route to reach it shall be conspicuously indicated in such a manner that every occupant of every building or structure who is physically and mentally capable will readily know the direction of the escape from any point, and each path of escape, in its entirety, shall be so arranged or mark that the way to a place of safety outside is unmistakable.
- In every building or structure equipped for artificial illumination, adequate and reliable illumination shall be provided for all exit facilities.
- Every automatic sprinkler system, fire detection and alarm system, exit lighting, fire door, and other item of equipment, where provided, shall be continuously in proper operating condition.
- Every building designed for human occupancy shall be provided with exits sufficient to permit the prompt escape of occupants in case of emergency.
- In hazardous areas, or where employees may be endangered by the blocking of any single means of egress due to fire or smoke, there shall be at least two means of egress remote from each other.
- Exits and the way of approach and travel from exits shall be maintained so that they are unobstructed and are accessible at all times.

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- The minimum width of any way of exit access shall be in no case less than 28 inches.
- No furnishings, decorations, or other objects shall be so placed as to obstruct exits, access thereto, egress therefrom, or visibility thereof.
- The employer shall review with each employee upon initial assignment those parts of the fire prevention plan which the employee must know to protect the employee in the event of an emergency.
- All exits shall discharge directly to the street or other open space that gives safe access to a public way.
- Exit doors serving more than 50 people, or at high hazard areas, shall swing in the direction of exit travel.
- Exits shall be marked by readily visible, suitably illuminated exit signs. Exit signs shall be distinctive in color and provide contrast with surroundings. The word "EXIT" shall be of plainly legible letters, not less than 6 inches (15 centimeters) high.
- Fire Exit's shall be illuminated.
- Any door, passage, or stairway that is neither an exit nor a way of exit access and that is so located or arranged as to be likely to be mistaken for an exit, shall be identified by a sign reading "Not an Exit" or similar designation.
- Emergency Action Plans - An emergency action plan to ensure employee safety in the event of fire and other emergencies shall be prepared in writing and reviewed with affected employees. The plan shall include the following elements: escape procedures and routes, critical plant operations, employee accounting following an emergency evacuation, rescue and medical duties, means of reporting emergencies, and persons to be contacted for information or clarification.
- Emergency Action Plans - Employers should apprise employees of the fire hazards of the materials and processes to which they are exposed.

GUARDING FLOOR AND WALL OPENINGS AND HOLES (29CFR 1910.23)

- Every stairway and ladderway floor opening shall be guarded by standard railings with standard toeboards on all exposed sides except at the entrance. For infrequently used stairways, the guard may consist of a hinged cover and removable standard railings. The entrance to ladderway openings shall be guarded to prevent a person walking directly into the opening.
- Every skylight floor opening and hole shall be guarded by a standard skylight screen or a fixed standard railing on all exposed sides.
- Every hatchway and chute floor opening shall be guarded by a hinged floor opening cover equipped with standard railings to leave only one exposed side or a removable railing with toeboards on not more than two sides and a fixed standard railing with toeboards on all other exposed sides.
- Every floor hole into (an opening measuring less than 12 inches but more than 1 inch in its least dimension; a floor opening is an opening measuring 12 inches in its least dimension) which persons can accidentally walk shall be guarded by either a standard railing with standard

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toeboards on all exposed sides, or a floor hole cover that should be hinged in place. While the cover is not in place, the floor hole shall be attended or shall be protected by a removable standard railing.

- Every open-sided floor, platform or runway 4 feet (1.2 meters) or more above adjacent floor or ground level shall be guarded by a standard railing with toeboards on all open sides, except where there is entrance to a ramp, stairway, or fixed ladder. Runways not less than 18 inches (45 centimeters) wide used exclusively for special purposes may have the railing on one side omitted where operating conditions necessitate.
- Regardless of height, open-sided floors, walkways, platforms, or runways above or adjacent to dangerous equipment shall be guarded with a standard railing and toeboards.

A standard railing shall consist of top rail, intermediate rail, and posts, and shall have a vertical height of 42 inches (1.05 meters) from upper surface to top rail and/or platform.

- A railing for open-sided floors, platforms, and runways, shall have toeboards whenever, beneath the open sides, persons can pass, there is moving machinery, or there is equipment with which falling material could cause a hazard.
- Railings shall be of such construction that the complete structure shall be capable of withstanding a load of at least 200 pounds (90 kilograms) in any direction on any point on the top rail.
- A stair railing shall be of construction similar to a standard railing, but the vertical height shall be no more than 34 inches (85 centimeters) nor less than 30 inches (75 centimeters) from upper surface of top rail to surface of tread in line with face of riser at forward edge of tread.
- Railings protecting floor openings, platforms, and scaffolds shall be equipped with toeboards whenever persons can pass beneath the open side, wherever there is moving machinery, or wherever there is equipment with which falling material could cause a hazard.
- A standard toeboard shall be at least 4 inches (10 centimeters) in height and may be of any substantial material, either solid or open, with openings no to exceed 1 inch (2.5 centimeters) in greatest dimension.
- On stairways less than 44 inches wide having both sides enclosed, at least one handrail is required - right side descending.
- On stairways less than 44 inches wide having one side open, at least one stair railing on the open side is required.
- On stairways less than 44 inches wide having both sides open, one stair railing on each side is required.
- On stairways more than 44 inches wide but less than 88 inches wide, one handrail on each enclosed side and one stair railing on each open side is required.
- On stairways 88 inches wide one handrail on each enclosed side, one stair railing on each open side, and one intermediate stair railing located approximately midway of the width.
- Every manhole floor opening shall be guarded by a standard manhole cover which need not be hinged in place. While the cover is not in place, the manhole opening shall be constantly attended by someone or protected by removable railings.

FIXED INDUSTRIAL STAIRS (1910.24)

- Vertical clearance above any Stair tread to an overhead obstruction shall be at least 7 ft. measured from the leading edge of the tread.
- Every flight of stairs having four or more risers shall be provided with a standard railing on all open sides. Handrails shall be provided on at least one side of closed stairways, preferable on the right side descending.
- Stairs shall be constructed so the rise height and tread width are uniform throughout.
- Fixed stairways shall have a minimum width of 22 inches (55 centimeters).
- Fixed stairways shall be provided for access from one structure to another where operations necessitate regular travel between levels, and for access to operating platforms at any equipment which requires attention routinely during operations. Fixed stairs shall also be provided where access to elevations is daily or at each shift where such work may expose employees to harmful substances, or for which purposes the carrying of tools or equipment by hand is normally required. Spiral stairways shall not be permitted except for special limited usage and secondary access situations where it is not practical to provide a conventional stairway.

PORTABLE WOOD (29CFR 1910.25) & METAL LADDERS (29CFR 1910.26):

- Step-ladders shall be equipped with a metal spreader or locking device of sufficient size and strength to securely hold the front and back sections in an open position.
- Ladders shall be inspected frequently and those that have developed defects shall be withdrawn from service for repair or destruction and tagged or marked as "Dangerous, Do Not Use."
- Non self-supporting ladders shall be erected on a sound base with the base of ladder a distance from the wall or upper support equal to one-quarter the length of the ladder and placed to prevent slipping.
- The top of a ladder used to gain access to a roof should extend at least 3 feet (0.9 meters) above the point of contact.
- Ladders with broken or missing steps, rungs, cleats, broken siderails or other faulty equipment shall not be used; improvised repairs shall not be made.
- Tops of ordinary types of step ladder shall not be used as steps.
- Extension ladder overlap shall be at a minimum:
 - 3 ft. for ladders up to 36 ft. in length.
 - 4 ft. for ladders up to 48 ft. in length.
 - 5 ft. for ladders up to 60 ft. in length.
- OSHA requires portable ladders to have non-conductive side rails if used by employees who would be working where they might contact exposed energized circuit parts.

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- Rungs and steps of metal ladders shall be corrugated, knurled, dimpled, coated with skid resistant material, or otherwise treated to minimized the possibility of slipping.

FIXED LADDERS (29CFR 1910.27)

- All rungs shall have a minimum diameter of $\frac{3}{4}$ inch (1.8 centimeters), if metal, or 1 $\frac{1}{8}$ inches (2.8 centimeters), if wood. They shall be a minimum of 16 inches (40 centimeters) wide and should be spaced uniformly no more than 12 inches (30 centimeters) apart.
- Cages, wells, or ladder safety devices for ladders affixed to towers, water tanks, or chimneys shall be provided on all ladders more than 20 feet (6 meters) long. Landing platforms shall be provided each 30 feet (9 meters) of length, except where no cage is provided, landing platforms shall be provided for every 20 feet (6 meters) of length.
- Tops of cages on fixed ladders shall extend 42 inches (1 meter) above the top of landing, unless other acceptable protection is provided, and the bottom of the cage shall be no less than 7 feet (2.1 meters) nor more than 8 feet (2.4 meters) above the base of the ladder.
- Side rails shall extend 3 $\frac{1}{2}$ feet (1 meter) above the landing.

SCAFFOLDS (28CFR 1910.28)

- The footing or anchorage for scaffolds shall be sound, rigid, and capable of carrying the maximum intended load without settling, or displacement. Unstable objects such as barrels, boxes, loose brick, or concrete blocks shall not be used to support scaffolds or planks.
- Scaffolds and their components shall be capable of supporting without failure at least four times the maximum intended load.
- Scaffold planks shall extend over the end supports not less than 6 inches nor more than 18 inches.

Scaffold planking shall be overlapped a minimum of 12 inches or secured from movement.

- Any scaffold damaged or weakened from any cause shall be immediately repaired and shall not be used until repairs have been completed.
- All planking shall be Scaffold Grade as recognized by grading rules for the species of wood used. The maximum permissible spans for 2 X 9 inch or wider planks are as follows:

	Full Thickness Undressed Lumber			Nominal Thickness Lumber	
Working Load (p.s.f.)	25	50	75	25	50
Permissible Span (ft.)	10	8	6	8	9

- The maximum permissible span for $\frac{1}{4}$ X 9 inch or wider plank of full thickness is 4 ft. with medium loading of 50 p.s.f.
- Scaffold planks shall extend over their end supports not less than 6 inches nor more than 18 inches.

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- Employees shall not work on scaffolds during storms or high winds.
- Platform planks shall be laid with their edges close together so the platform will be tight with no spaces through which tools or fragments of material can fall.

FALL PROTECTION (DUTY TO RAVE FALL PROTECTION 29CFR 1926.501)

- Each employee on a walking I working surface (horizontal and vertical surface) with an unprotected side or edge which is 6 feet (1.8 m) or more above a lower level shall be protected from falling by the use of guardrail systems, safety net systems, or personal fall arrest systems.
- When the employer can determine that it is infeasible or creates a greater hazard to use these systems, the employer shall develop and implement a fall protection plan which meets the requirements of paragraph (k) of 1926.502.
- Each employee at the edge of a well, pit, shaft, and similar excavation 6 feet (1.8 m) or more in depth shall be protected from falling by guardrail systems, barricades, or covers.
- "Roofing work on Low-slope roofs." Except as otherwise provided in paragraph (b) of this section, each employee engaged in roofing activities on low-slope roofs, with unprotected sides and edges 6 feet (1.8 m) or more above lower levels shall be protected from falling by guardrail systems, safety net systems, personal fall arrest systems, or a combination of warning line system and guardrail system, warning line system and safety net system, or warning line system and personal fall arrest system, or warning line system and safety monitoring system. Or, on roofs 50-feet(15.25 m) or less in width (see Appendix A to subpart M of this part), the use of a safety monitoring system alone[i.e. without the warning system] is permitted.
- "Steep roofs." Each employee on a steep roof with unprotected sides and edges 6 feet (1.8 m) or more above lower levels shall be protected from falling by guardrail systems with toeboards, safety net systems, or personal fall arrest systems.

FALL PROTECTION (SYSTEMS CRITERIA & PRACTICES 29CFR 1926.502)

- Top edge height of top rails, or equivalent guardrail system members, shall be 42 inches (1.1 m) plus or minus 3 inches (8cm).
- Midrails, screens, mesh, intermediate vertical members, or equivalent intermediate structural members shall be installed between the top edge of the guardrail system and the walking I working surface when there is no wall or parapet wall at least 21 inches (53 cm) high.
- Guardrail systems shall be capable of withstanding, without failure, a force of at least 200 pounds (890 N) applied within 2 inches (5.1 cm) of the top edge, in any outward or downward direction, at any point along the top edge.
- Top rails and mid rails shall be at least one-quarter inch (0.6 cm) nominal diameter or thickness to prevent cuts and lacerations. If wire rope is used for top rails, it shall be flagged at not more than 6-foot (1.8 m) intervals with high-visibility material.
- Safety nets shall be installed as close as practicable under the walking I working surface on which employees are working, but in no case more than 30 feet (9.1 m) below such level.

When nets are used on bridges, the potential fall area from the walking *I* working surface to the net shall be unobstructed.

- Safety nets shall be installed with sufficient clearance under them to prevent contact with the surface or structures below when subjected to an impact force equal to the drop test specified in paragraph (C)(4)(i) in this section.
- Safety nets and their installations shall be capable of absorbing an impact force equal to that produced by the drop test specified in paragraph (C)(4)(i) of this section. Except as provided in paragraph (C)(4)(ii) of this section, safety nets and safety net installations shall be drop-tested at the jobsite after initial installation and before being used as a fall protection system, whenever relocated, after major repair, and at 6-month intervals if left in one place. The drop-test shall consist of a 400 pound (180kg) bag of sand 30+1-2 inches (75 ~1- 5 cm) in diameter dropped into the net from the highest walking *I* working surface at which employees are exposed to fall hazards, but from less than 42 inches (1.1 m) above that level.

Safety nets shall be inspected at least once a week for wear, damage and other deterioration.

- The maximum size of each safety net mesh opening shall not exceed 36 square inches (230 cm²) nor be longer than 6 inches (15 cm) on any side, and the opening, measured center-to center of mesh ropes or webbing, shall not be longer than 6 inches (15 cm). All mesh crossings shall be secured to prevent enlargement of the mesh opening.
- Effective January 1, 1998, body belts are not acceptable as part of a personal fall arrest system.

Connectors shall be drop forged, pressed or formed steel, or made of equivalent materials.

- Connectors shall have a corrosion-resistant finish, and all surfaces and edges shall be smooth to prevent damage to interfacing parts of the system.
- Dee-rings and snaphooks shall have a minimum tensile strength of 5,000 pounds (22.2 kN). Anchorages used for attachment of personal fall arrest equipment shall be independent of any anchorage being used to support or suspend platforms and capable of supporting at least 5,000 pounds (22.2 kN) per employee attached, or shall be designed, installed, and used as follows:

As part of a complete personal fall arrest system which maintains a safety factor of at least two; and

Under the supervision of a qualified person.

- Personal fall arrest systems when stopping a fall shall:

Limit maximum arresting force on an employee to 900 pounds (4 kN) when used with a body belt;

Limit maximum arresting force on an employee to 1,800 pounds (8 kN) when used with a body harness;

Be rigged such that an employee can neither free fall more than 6 feet (1.8 m), nor contact any lower level.

- The attachment point of the body belt shall be located in the center of the wearer's back. The attachment point of the body harness shall be located in the center of the wearer's back near shoulder level, or above the wearer's head.

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- Personal fall arrest systems shall be inspected prior to each use for wear, damage and other deterioration, and defective components shall be removed from service.
- Personal fall arrest systems shall not be attached to guardrail systems, nor shall they be attached to hoists except as specified in other subparts of this part.
- Positioning devices shall be rigged such that an employee cannot free fall more than 2 feet (.6m).
- Positioning devices shall be secured to an anchorage capable of supporting at least twice the potential impact load of an employee's fall or 3,000 pounds (~3.3 kN), whichever is greater.

The warning line shall be erected around all sides of the roof work area.

- When mechanical equipment is not being used, the warning line shall be erected not less than 6 feet (1.8 m) from the roof edge. Warning lines shall consist of ropes, wires, or chains, and supporting stanchions erected as follows:

The rope, wire, or chain shall be flagged at not more than 6-foot (1.8 m) intervals with high-visibility material;

The rope, wire, or chain shall be rigged and supported in such a way that its lowest point (including sag) is no less than 34 inches (.9 m) from the walking / working surface and its highest point is not more than 39 inches (1.0 m) from the walking / working surface;

After being erected, with the rope, wire, or chain attached, stanchions shall be capable of resisting, without tipping over, a force of at least 16 pounds (71 N) applied horizontally against the stanchion, 30 inches (.8 m) above the walking / working surface, perpendicular to the warning line, and in the direction of the floor, roof, or platform edge;

The line shall be attached at each stanchion in such a way that pulling on one section of the line between stanchions will not result in slack being taken up in adjacent sections before the stanchion tips over.

Safety Monitoring Systems. Safety monitoring systems [see section 1926.501(b)(10) and 1926.502(k)] **and their use** shall comply with the **following provisions:**

- The employer shall designate a competent person to monitor the safety of other employees and the employer shall ensure that the safety monitor complies with the following requirements:

The safety monitor shall be competent to recognize fall hazards;

The safety monitor shall warn the employee when it appears that the employee is unaware of a fall hazard or is acting in an unsafe manner;

The safety monitor shall be on the same walking / working surface and within visual sighting distance of the employee being monitored;

The safety monitor shall be close enough to communicate orally with the employee; and

The safety monitor shall not have other responsibilities, which could take the monitor's attention from the monitoring function.

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- Mechanical equipment shall not be used or stored in areas where safety-monitoring systems are being used to monitor employees engaged in roofing operations on low-slop roofs.
- No employee, other than an employee engaged in roofing work [on low-sloped roofs] or an employee covered by a fall protection plan, shall be allowed in an area where an employee is being protected by a safety monitoring system.
- Each employee working in a controlled access zone shall be directed to comply promptly with fall hazard warnings from safety monitors.

Fall Protection Plan. This option is available only to employees engaged in leading edge work, precast concrete erection work, or residential construction work (See section 1926.501(b)(2), (b)(12), and (0)(13) who can demonstrate that it is infeasible or it creates a greater hazard to use conventional fall protection equipment.

- The fall protection plan shall be prepared by a qualified person and developed specifically for the site where the leading edge work, precast concrete work, or residential construction work is being performed and the plan must be maintained up to date.
- Any changes to the fall protection plan shall be approved by a qualified person.
- A~ copy of the fall protection plan with all approved changes shall be maintained at the job site.
- The implementation of the fall protection plan shall be under the supervision of a competent person.
- The fall protection plan shall document the reasons why the use of conventional fall protection systems (guardrail systems, personal fall arrest systems, or safety nets systems) are infeasible or why their use would create a greater hazard.
- The fall protection plan shall include a written discussion of other measures that will be taken to reduce or eliminate the fall hazard for workers who cannot be provided with protection from conventional fall protection systems. Where no other alternative measure has been implemented, the employer shall implement a safety monitoring system. The fall protection plan must include a statement, which provides the name or other method of identification for each employee who is designated to work in controlled access zones. No other employees may enter controlled access zones.

FALL PROTECTION (TRAINING REQUIREMENTS 29CFR 1926.503)

- The employer shall provide a training program for each employee who might be exposed to fall hazards. The program shall enable each employee to recognize the hazards of falling and shall train each employee in the procedures to be followed in order to minimize these hazards.
- The employer shall assure that each employee has been trained, as necessary, by a competent person qualified in the following areas:

The nature of fall hazards in the work area;

The correct procedures for erecting, maintaining, disassembling, and inspecting the fall protection systems to be used;

The use and operation of guardrail systems, personal fall arrest systems, safety net systems, warning line systems, controlled access zones, and other protection to be used;

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The role of each employee in the safety monitoring system when this system is used;

The limitations on the use of mechanical equipment during the performance of roofing work on low-sloped roof,

The correct procedures for the handling and storage of equipment and materials and the erections of overhead protection; and

The role of employees in fall protection plans;

The standards contained in this subpart.

- The employer shall verify compliance with paragraph (a) of this section by preparing a written certification record. The written certification record shall contain the name or other identity of the employee trained, the date(s) of the training, and the signature of the person who conducted the training or the signature of the employer. If the employer relies on training conducted by another employer or completed prior to the effective date of this section, the certification record shall indicate the date the employer determined the prior training was adequate rather than the date of actual training.

FLAMMABLE/COMBUSTIBLE LIQUID STORAGE (29CFR 1910.106)

Flammable liquids shall be kept in covered containers or tanks when not actually in use.

Flammable, combustibles, and acids should not be stored together.

No more than 120 gallons of Class I, II and III A liquids in a storage cabinet and of this 120 gallons, not more than 60 gallons shall be of Class I and II.

(Examples)		
<u>Class I</u>	<u>Class II</u>	<u>Class III</u>
(Flashpoints <100°F)	(Flashpoints >100°F & <140°F)	(Flashpoints >140°F)
Gasoline	Acetic Acid	Phenol
Formic Acid	Mineral Spirits	JP-5
Ethyl Ether	Fuel Oil #4 or #5	Fuel Oil ~6
Petroleum Ether	Ethyl Alcohol (10%)	Ethyl Alcohol (5%)

- There shall be no more than three flammable lockers next to each other. Exceptions allowed in an industrial environment, and if more than three lockers are required, they need to be separated by 100 feet.
- Flammable storage cabinets require the metal bungs to be installed.
- Outside storage areas shall be graded so as to direct spills away from buildings or other exposures, or be surrounded with curbs at least 6 inches high with appropriate drainage to a safe location for accumulated liquids.

PERSONAL PROTECTIVE EQUIPMENT (29CFR 1910.132)

- Proper personal protective equipment - including covers for the eyes, face, head, and extremities, respiratory devices, and protective shields and barriers - shall be provided, used,

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and maintained in a sanitary and reliable condition where there is a hazard from processes or environments that may cause injury or illness to the employee.

EMERGENCY WASHING FACILITIES (29CFR 1910.151)

- Where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body shall be provided within the work area for immediate emergency use.
- All plumbed eyewash and emergency shower stations shall be activated weekly for a minimum of 3 minutes, to flush the line and to verify proper operation (OPNAVINST 5100.23E).

COMPRESSED AIR EQUIPMENT (29CFR 1910.242)

- Compressed air used for cleaning purposes shall not exceed 30 pounds (13.5 kilograms) per square inch (6.5 square centimeters) when the nozzle end is obstructed or dead-ended, and then only with effective chip guarding and personal protective equipment.

OXYGEN/FUEL CYLINDERS (29CFR 1910.253)

- Compressed gas cylinders shall be kept away from excessive heat, shall not be stored where they might be damaged or knocked over by passing or falling objects, and shall be stored at least 20 feet (6 meters) away from highly combustible materials.
- Where a cylinder is designed to accept a valve protection cap, caps shall be in place except when the cylinder is in use or is connected for use.
- Inside of buildings, cylinders shall be stored in a well protected, well-ventilated, dry location at least 20 feet (6 meters) from highly combustible materials such as oil or excelsior. Cylinders should be stored in definitely assigned places away from elevators, stairs, or gang ways. Assigned storage spaces shall not be kept in unventilated enclosures such as lockers and cupboards.
- Acetylene cylinders shall be stored and used in a vertical, valve-end-up position only.
- Under no conditions shall acetylene be generated, piped (except in approved cylinder manifolds) or utilized at a pressure in excess of 15 pounds per square inch (psi) (103 kPa gauge pressure) or 30 psi (206 kPa absolute). The use of liquid acetylene is prohibited.
- Oxygen cylinders in storage shall be separated from fuel-gas cylinders or combustible materials (especially oil or grease) a minimum distance of 20 feet (6 meters) or by a noncombustible barrier at least 5 feet high (1.5 meters) having fire-resistance rating of V_2 hour.
- All compressed gas cylinders shall be secured in such a manner as to prevent them from tipping over.

ELECTRICAL (29CFR 1910.304)

- Electrical equipment shall be free from recognized hazards that are likely to cause death or serious physical harm to employees.
- Electrical outlets shall not be wired for reverse polarity.

- For a grounded system, a grounding electrode conductor shall be used to connect both the equipment grounding conductor and the grounded circuit conductor to the grounding electrode. Both the equipment grounding conductor and the grounding electrode conductor shall be connected to the grounded circuit conductor on the supply side of the service disconnecting means or on the supply side of the system disconnecting means or over current devices if the system is separately derived.
- For an ungrounded service-supplied system, the equipment grounding conductor shall be connected to the grounding electrode conductor at the service equipment.

The frames of portable electrical tools and equipment, except when UL-approved double-insulated construction shall be properly grounded

- All non-current carrying metal parts of portable equipment and fixed equipment including their associated fences, housings, enclosures, and supporting structures shall be grounded.

GENERAL ELECTRICAL REQUIREMENTS (29 CFR 1910.303)

- Circuit breaker panels shall have a minimum three-foot (*36-inch*) clearance.
- Electrical cords not be strained and in good condition (no exposed conductors).
- Listed or labeled equipment shall be used or installed in accordance with any instructions included in the listing or labeling.
- Electrical wiring shall not exhibit exposed conductors. Power cord insulation shall not show signs of fraying.
- Conductors shall be spliced or joined with devices identified for such use or by brazing, welding, or soldering with a fusible alloy or metal. All splices, joints, and free ends of conductors shall be covered with an insulation equivalent to that of the conductor or with an insulating device suitable for the purpose.

WIRING METHODS AND COMPONENTS (29 CFR 1910.305)

- Flexible cords and cables shall be protected from accidental damage.
- Unless specifically permitted, flexible cords and cables may not be used as a substitute for the fixed wiring of a structure, where attached to building surfaces, where concealed or where run through holes in walls, ceilings, or floors, or where run through doorways, windows, or similar openings. Flexible cords shall be connected to devices and fittings so that strain relief is provided that will prevent pull from being directly transmitted to joints or terminal screws.
- Electrical wiring shall not be permitted to run through doorways, walls, windows, and ceilings.
- Extension cords are not authorized electrical strips with circuit breaker and surge suppressor is used are permitted.
- Damaged or cracked electrical receptacle covers are not permissible.
- Ground Fault Circuit Interrupter (GFCI) electrical receptacles, shall be utilized at all sink locations.
- Use of "handi-boxes" and extension cords are prohibited.
- Electrical, Openings - Unused openings in cabinets, boxes and fittings shall be effectively closed.

TOOLS /MACHINERY/MACHINE GUARDING: (29CFR 1910.212)

- Powder actuated fastening tools have method of control, inspection records, and training records. Abrasive blasting glove boxes may not have leaks.
- Hooks and chains shall be visually inspected daily and monthly with a full, written, dated, and signed report of condition kept on file and be readily available to appointed personnel. Running ropes shall be inspected monthly and written report of condition kept on file and be readily available to appointed personnel.
- All U-bolt rope clips on hoist ropes on overhead and gantry cranes shall be installed so that the U-bolt is in contact with the dead end (short or non load carrying end) of the rope. Clips shall be installed in accordance with the clip manufacturer's recommendation. All nuts on newly installed clips shall be tightened after 1 hour of use.
- All weight handling equipment hooks have been uniquely identified.
- Hoist ropes on crawler, locomotive, and truck cranes shall be free from kinks or twists and shall not be wrapped around the load.
- Each employer shall be responsible for the safe condition of tools and equipment used by employees, including tools and equipment which may be furnished by employees.
- All hand tools shall be kept in a safe condition. Handles of tools shall be kept tight in the tool and wooden handles shall be free of splinters or cracks. Wedges and chisels shall be free of mushroomed heads. Wrenches shall not be used when sprung to the point that slippage occurs.
- Machine guarding shall be provided to protect employees in the machine area from hazards such as those created by point of operation, nip points, rotating parts, flying chips, and sparks. The guard shall be such that it does not offer an accident hazard in itself.
- Abrasive Bench Grinders the grinding wheels should be free of embedded metal in the wheel.
- The point-of-operation guarding device shall be so designed as to prevent the operator from having any part of his body in the danger zone during the operating cycle.
- The point-of-operation of machines (where possible injury could occur) are provided with guard.
- Special supplemental hand tools for placing and removing material shall permit handling of material without the operator placing a hand in the danger zone.
- When the periphery of the blades of a fan is less than 7 feet (2.1meters) above the floor or working level, the blades shall be guarded. The guard shall have openings no larger than 1/2inch (12.5 millimeters).
- Fans less than seven feet from floor - shall have protective cover guard over blades with openings less than 1/2 -.

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- Machines designed for a fixed location shall be securely anchored to prevent walking or moving, or designed in such a manner that they will not move during normal operation.
- Machines designed for a fixed location are securely anchored to prevent walking or moving.
- Belt and sanding machines used for woodworking shall be provided with guards at each nip point where the sanding belt runs onto a pulley and the unused run of the sanding belt shall be shielded to prevent accidental contact.
- All woodworking machinery - such as table saws, swing saws, radial saws, band saws, jointers, tenoning machines, boring and mortising machines, shapers, planers, lathes, sanders, veneer cutters, and other miscellaneous woodworking machinery - shall be enclosed or guarded, except that part of the blade doing the actual cutting, to protect the operator and other employees from hazards inherent to the operation.
- Power control devices shall be provided on each machine to make it possible for the operator to cut off the power to the machine without leaving his/her position at the point of operation.
- Power controls and operating controls should be located within easy reach of the operator while at his/her regular work location, making it unnecessary for the operator to reach over the cutter to make adjustments. This does not apply to constant pressure controls used only for setup purposes.
- *Re-starts.* In operations where injury to the operator might result if motors were to restart after power failures, provisions shall be made to prevent machines from automatically restarting upon restoration of power.
- *Band saw* blades shall be enclosed or guarded except for the working portion of the blade between the bottom of the guide rolls and the table. Band saw wheels shall be fully encased. The outside periphery of the enclosure shall be solid. The front and back shall be either solid or wire mesh or perforated metal.
- *Circular table saws* shall have a hood over the portion of the saw above the table mounted so that the hood will automatically adjust itself to the thickness of and remain in contact with the material being cut.
- *Circular table saws* shall have a spreader aligned with the blade, spaced no more than 1/2 inch (8 millimeters) behind the largest blade mounted in the saw. The provision of a spreader in connection with grooving, dadoing, or rabbeting is not required.
- *Circular table saws* used for ripping shall have nonkickback fingers or dogs.
- *Inverted swing or sliding cut-off saws* shall be provided with a hood that will cover the part of the saw that protrudes above the top of the table or material being cut.
- *Radial saws* shall have an upper guard that completely encloses the upper half of the saw blade. The sides of the lower exposed portion of the blade shall be guarded by a device that will automatically adjust to the thickness of and remain in contact with the material being cut.
- Radial Saws - saw returns to starting position after the operator releases the saw (return spring not worn)
- *Radial saws* used for ripping shall have nonkickback fingers or dogs.
- *Radial saws* shall have an adjustable stop to prevent the forward travel of the blade beyond the position necessary to complete the cut in repetitive operations.

- *Radial saws* shall be installed so that the cutting head will return to the starting position when released by the operator.
- *Rio saws* shall have a spreader aligned with the blade and shall be no thinner than the blade. The provision of a spreader in connection with grooving, dadoing, or rabbeting is not required.

Rio saws shall have non-kickback fingers or dogs.

- *Self-feed circular saws'* feed rolls and blades shall be protected by a hood or guard to prevent the hand of the operator from coming into contact with the in-running rolls at any point.

Swing or sliding cut-off saws shall be provided with a hood that will completely enclose the upper half of the saw.

Swing or sliding cut-off saws shall be provided with limit stops to prevent the saws from extending beyond the front or back edges of the table.

- *Swing or sliding cut-off saws* shall be provided with an effective device to return the saw automatically to the back of the table when released at any point of its travel.
- All belts, pulleys, sprockets and chains, flywheels, shafting and shaft projections, gears, and couplings, or other rotating or reciprocating parts, or any portion thereof, within 7 feet (2.1 meters) of the floor or working platform shall be effectively guarded.
- All guards for inclined belts shall conform to the standards for construction of horizontal belts, and shall be arranged in such a manner that a minimum clearance of 7 feet (2. meters) is maintained between the belt and floor at any point outside the guard.
- Flywheels located so that any part is 7 feet (2.1 meters) or less above the floor or platform shall be guarded with an enclosure of sheet, perforated, or expanded metal or woven wire.
- Flywheels protruding through a working floor shall be entirely enclosed by a guardrail and toeboard.
- Where both ends of horizontal belts are 7 feet (2.1 meters) or less from the floor or working surface, the guard shall extend at least 15 inches (37.5 centimeters) above the belt or to a standard height except that where both ends of a horizontal belt are 42 inches (1.05 meters) or less from the floor, the belt shall be fully enclosed by guards made of expanded metal, perforated or solid sheet metal, wire mesh on a frame of angle iron, or iron pipe securely fastened to the floor to the frame of the machine.
- Gears, sprocket wheels, and chains shall be enclosed; unless they are more than 7 feet (2.1 meters) above the floor or the mesh points are guarded
- Couplings with bolts, nuts or set screws extending beyond the flange of the coupling shall be guarded by a safety sleeve.

POWERED INDUSTRIAL TRUCKS (29CFR 1910.178)

- If at any time a powered industrial truck (forklift) is found to be in need of repair, defective, or in any way unsafe, the truck shall be taken out of service until it has been restored to safe operating condition.

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- High-lift rider trucks shall be equipped with substantial overhead guards.
- Fork trucks shall be equipped with vertical-load backrest extensions when the types of loads present the possibility of the load or part of it from falling rearward.
- The brakes shall be set and wheel chocks placed under the rear wheels to prevent the movement of trucks, trailers, or railcars while loading or unloading.
- It is the responsibility of the employer to ensure that each powered industrial truck operator is competent to operate a powered industrial truck safely as demonstrated by the successful completion of training and evaluation.
- Modifications and additions which affect the capacity and safe operation shall not be performed by the user without the manufacturer's prior written approval. Capacity, operation, and maintenance instruction plates, tags or decals shall be changed accordingly.
- When a powered industrial truck is left unattended (operator > 25 ft. away), load engaging means shall be fully lowered, controls shall be neutralized, power shall be shut off, and brake set. Wheels shall be blocked if the truck is on an incline.
- An overhead guard shall be used as protection against falling objects. It should be noted that an overhead guard is intended to offer protection from the impact of small packages, boxes, bagged material, etc., representative of the job application, but not to withstand the impact of a falling capacity load.
- Arms or legs are prohibited from being placed between the uprights of the mast or outside the running lines of the truck.
- Unauthorized personnel shall not be permitted to ride on powered industrial trucks.
- The driver shall be required to slow down and sound the horn at cross aisles and other locations where vision is obstructed. If the load being carried obstructs forward view, the driver shall be required to travel with the load trailing.
- When ascending or descending grades in excess of 10 percent, loaded trucks shall be driven with the load upgrade.
- On all grades the load and load engaging means shall be tilted back if applicable, and raised only as far as necessary to clear the road surface.
- Motorized hand trucks must enter elevators or other confined areas with load end forward.
- Fuel tanks shall not be filled while the engine is running and spillage shall be avoided.
- Industrial trucks shall be examined before being placed in service if the examination shows any condition adversely affecting the safety of the vehicle. Such examination shall be made at least daily. Where industrial trucks are used on a round-the-clock basis, they shall be examined after each shift. Defects when found shall be immediately reported and corrected.

GENERAL DUTY CLAUSE

- File drawers shall be maintained in closed position (when not in use).

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- File cabinets shall not be top heavy - store lower drawers with heavier items.
- File cabinets - not more than one drawer opened at one time - tipping hazard.
- Coffee makers, space heaters or hot plates are maintained 18" from combustible material (wood, paper, plastics, etc.).
- Tall shelf cabinets shall be secured to wall (over 6').
- Overhead storage shall be secured on shelves.
- Overhead stored materials are not stacked and/or are not heavy in nature - could injure someone if it fell.
- Computer keyboard users utilize wrist rests.
- Computer monitors are positioned directly in front of user at eye level.
- Material safety data sheets (MSDS) are at work site for items, i.e. toner for copy machine, glass cleaner, etc.
- No excessive storage, boxes or trash.
- Coffeepot not located on a combustible surface.
- Overhead storage shall have the minimum 18" clearance of sprinkler head.
- Trash containers are not over filled.

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BASIC PROGRAM ELEMENTS FOR FEDERAL EMPLOYEE OCCUPATIONAL SAFETY & HEALTH PROGRAMS

PART 1960 – BASIC PROGRAM ELEMENTS FOR FEDERAL EMPLOYEE OCCUPATIONAL SAFETY AND HEALTH PROGRAMS AND RELATED MATTER

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